

# Notice of Allowability

Application No.

10/017,467

Examiner

David A Reifsnyder

Applicant(s)

PORTER ET AL.

Art Unit

1723

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to communication filed on November 3, 2003.
2. ☒ The allowed claim(s) is/are 1-8.
3. ☒ The drawings filed on 13 December 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.
5. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |  |   |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) <u>NONE IN CASE</u>  | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)          |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____.            |
| 3 <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. <u>3/02; 4/02</u> | 7 <input type="checkbox"/> Examiner's Amendment/Comment                             |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material                       | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
|  | 9 <input type="checkbox"/> Other _____  |

### **REASONS FOR ALLOWANCE**

The main reason for the allowance of claims 1-4 is the instantly claimed method of monitoring analyte flowing in fluid streams comprising the steps of:

providing a giant magnetoresistive sensor having at least one sensing element which produces electrical output signals that vary dependent on changes in the magnetic field proximate the sensing element;

providing a stream including the analyte, the stream having a magnetic property dependent on the concentration and distribution of analyte therein;

flowing the stream past the giant magnetoresistive sensor in sufficiently close proximity to cause the magnetic properties of the stream to produce electrical output signals from the giant magnetoresistive sensor; and

monitoring the electrical signals produced by the giant magnetoresistive sensor as an indicator of at least one of an analyte concentration, an analyte distribution, and an analyte magnetic property in the stream flowing past the giant magnetoresistive sensor.

The main reason for the allowance of claims 5-8 is the instantly claimed detecting system for monitoring the concentration of analyte present in a flowing fluid stream, the detecting system comprising in combination:

a giant magnetoresistive sensor having at least one sensing element for detecting localized changes in the magnetic field proximate the sensing element;

microfluidic channels associated with the giant magnetoresistive sensor for providing microfluidic channels closely proximate the sensor element, the proximity being such that magnetic particles flowing in the channels will cause an output from the giant magnetoresistive sensor indicative of at least one of the concentration, distribution, and magnetic properties of magnetic particles;

a source of analyte in a fluid stream altered such that the fluid stream has a magnetic property related to the concentration or distribution of analyte in the stream, the source being corrected to the microfluidic channels for flowing a stream including the analyte past the giant magnetoresistive sensor; and

an electrical monitor responsive to the giant magnetoresistive sensor for measuring and recording changes in the output signal as an indication of the magnetic properties and therefore analyte concentration or distribution in the stream flowing past the giant magnetoresistive sensor.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Reifsnyder whose telephone number is (703) 308-0456. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M Walker can be reached on (703) 308-0457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-3601.

  
David A Reifsnyder  
Primary Examiner  
Art Unit 1723

DAR